

AMENDMENTS TO THE CLAIMS

The following listing of claims will replace all prior versions and listings of claims in the application.

LISTING OF CLAIMS

1. (currently amended) An apparatus connected to an energy storage device for powering an electric motor and ~~optionally~~ providing a warming function for the energy storage device, said apparatus comprising:

a circuit connected to the electric motor and the energy storage device for generating ~~[[a]]~~ an alternating current; and

switching means ~~operable~~ operably associated with the circuit for selectively directing the alternating current to one of the electric motor and the energy storage device.

2. (currently amended) The apparatus of Claim 1 wherein the switching means includes a switching device operable between a first state for directing the alternating current to the electric motor and a second state for directing the alternating current through the energy storage device.

3. (currently amended) The apparatus of Claim 1 wherein the circuit is an inverter circuit for generating ~~an~~ the alternating current from the energy storage device.

4. (currently amended) A circuit for powering an electric motor and warming an energy storage device, the energy storage device including at least first and second cells having positive and negative terminals and a center tap formed between the first and second cells, the circuit comprising:

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an inverter circuit connected to the energy storage device for generating an alternating current; and

a switching device connected to the positive and negative terminals and to the centertap of the energy storage device, the switching device operably associated with the inverter circuit for selectively controlling the alternating current flow to one of the electrical motor and the energy storage device;

the switching device providing a first electrical connection between the centertap of the energy storage device and the inverter circuit for directing the alternating current through the energy storage device for generating heat; and

the switching device providing a second electrical connection between the inverter circuit and the electrical motor for directing the alternating current to the electric motor.

5. (original) The circuit of claim 4 wherein the inverter circuit includes three separate DC to AC power inverter branches connected in parallel.

6. (original) The circuit of claim 4 wherein the electrical connection between the centertap of the energy storage device and the inverter circuit heats the energy storage device by cycling the alternating current through the energy storage device.

7. (original) The circuit of claim 5 wherein each of the DC to AC power inverter branches further includes two transistors and a common node formed therebetween.

8. (original) The circuit of claim 5 wherein each of the DC to AC power inverter branches generates an alternating current by alternately switching two transistors between a conducting state and a nonconducting state via a control circuit.

9. (original) The circuit of claim 5 wherein the switching device includes an inductor connected between the centertap of the energy storage device and the inverter circuit.

10. (original) A circuit for powering an electric motor and warming an energy storage device, the energy storage device including first and second cells having a centertap formed therebetween and positive and negative terminals at each end of the energy storage device, the circuit comprising:

an inverter circuit connected to the electric motor and the positive and negative terminals of the energy storage device, the inverter having a plurality of current switching branches for generating an alternating current, each current switching branch having upper and lower nodes for connecting each current switching branch to the energy storage device, and a common node for connecting each current switching branch to the electric motor; and

a disconnect circuit connected to the inverter circuit and the energy storage device operable for switching between a first mode and a second mode;

the first mode directing the alternating current from the energy storage device to the current switching branches of the inverter circuit for powering the electric motor; and

the second mode isolating a first branch of the inverter circuit from the remaining branches of the inverter circuit and the electric motor, wherein the first isolated branch can be switched for circulating the alternating current through the energy storage device.

11. (original) The circuit of claim 10 wherein the disconnect circuit includes first, second, third, and fourth switching elements.

12. (original) The circuit of claim 11 wherein the first switching element connects the positive terminal of the energy storage device and the upper node of the first current switching branch.

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13. (original) The circuit of claim 11 wherein the second switching element connects the centertap of the energy storage device and the common node of the first current switching branch.

14. (original) The circuit of claim 11 wherein the third switching element connects the electric motor and the common node of the first current switching branch.

15. (original) The circuit of claim 11 wherein the fourth switching element connects the negative terminal of the energy storage device and the lower node of one of the current switching branches.

16. (original) The circuit of claim 11 wherein the disconnect circuit is operable for disconnecting the first, third, and fourth switching elements for operating the disconnect circuit in the first mode.

17. (original) The circuit of claim 11 wherein the disconnect circuit is operable for disconnecting the first, second, and third switching elements for operating the disconnect circuit in the second mode.

18. (original) The circuit of claim 11 wherein the alternating current passes from the common nodes of all of the switching branches to the electric motor when the disconnect circuit operates in the first mode.

19. (original) The circuit of claim 11 wherein the alternating current passes from the common node of the first switching branch to the centertap of the energy storage device for warming the energy storage device when the disconnect circuit operates in the second mode.

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20. (original) The circuit of claim 10 where in the disconnect circuit includes an inductor connected between the centertap of the energy storage device and the common node of the inverter circuit.